

MONTANA FOREST LANDOWNER BIRD HABITAT MANAGEMENT

As the fourth largest state, Montana hosts a remarkable 443 species of birds (including accidentals) occupying diverse habitats from prairie to alpine. Species known to nest and migrate through Montana include both the Trumpeter Swan, the largest bird in North America (over 40 pounds) and the smallest bird on the continent, the Calliope Hummingbird (3" in length).

Birds use their habitat in different ways to meet their life history requirements. In forests, birds may use trees for nesting and cover, while using openings and understory vegetation for foraging. The brightly colored Western Tanager nests in mature conifer trees but finds its food in adjacent openings. MacGillivray's Warblers prefer early successional forests after logging with dense undergrowth of shrubs for nesting. Olive-sided Flycatchers with their characteristic song ("quick-three-beers") are most commonly found nesting in recently burned forests and foraging for insects in clearings.

Land use practices like timber management, grazing, mining, energy development and recreation can have significant positive and negative effects on many of Montana's resident and migratory bird species. The remarkable recovery of Bald Eagles is evidence of what positive management for bird species at risk can achieve. With nearly 55% of Montana in private ownership, private forest landowners have a significant opportunity to conserve game, non-game and "at risk" bird species on their land.

This publication is designed to inform landowners of the tremendous diversity of bird species supported in Montana forests. Presented here are basic principles for evaluating forest habitat for birds and suggestions on how to utilize silviculture in managing for habitat. Also included are methods to create and maintain special habitats and resources for additional information.



Pileated Woodpecker

Photo: Nathan DeBoer



Western Tanager

Photo: Nathan DeBoer



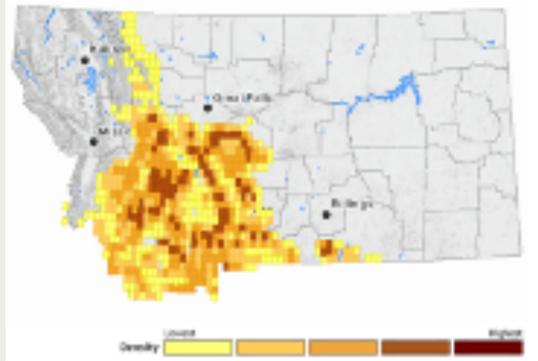
Photo: Nathan DeBoer

STEP 1 Identify Regional Conservation Needs

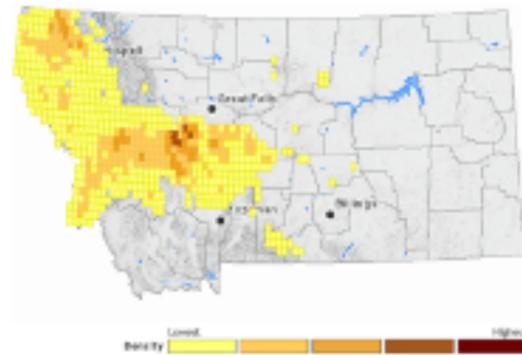
In their Montana Field Guide, the Montana Natural Heritage Program has identified ecological systems for the state that provide a context for conservation at the regional level.

Four ecosystems important to Montana woodlot owners:

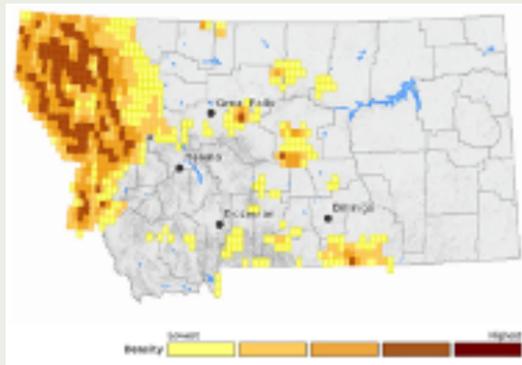
Rocky Mountain Montane Douglas-Fir Forest and Woodland



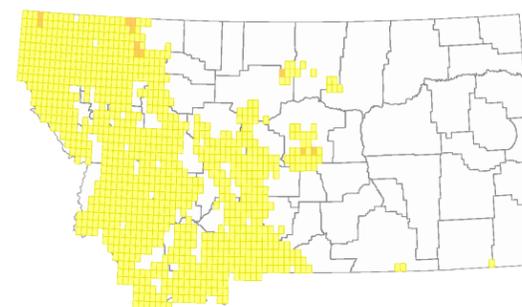
Rocky Mountain Ponderosa Pine Woodland and Savanna



Rocky Mountain Dry-Mesic Montane Mixed Conifer



Aspen and Mixed Conifer Forest



Descriptions of ecosystems (noted on opposite page)

In Montana, this ecological system occurs on the east side of the Continental Divide, north to about the McDonald Pass area, and along the Rocky Mountain Front. Elevations range from valley bottoms to 6,500 feet in northern Montana and up to 7,500 feet on warm aspects in southern Montana. Douglas-fir is the dominant tree species along with limber pine and lodgepole pine. Common understory plants include ninebark, juniper, spiraea, snowberry, huckleberry and Oregon grape.

In western and central Montana, this ecosystem forms a belt on warm, dry, exposed sites between grasslands and Douglas-fir forests. Elevations range from 3,500-5,500 feet. This system can occur at higher elevations in central Montana. Ponderosa pine is the dominant tree species, with Douglas-fir and western larch occurring in western Montana stands and limber pine and juniper present in central Montana stands. Grasses dominate the understory with serviceberry, snowberry, antelope bitterbrush and bearberry present as well.

This ecological system, composed of highly variable montane conifer forests, is found throughout Montana. Elevations range from valley bottoms to 5,500 feet in northwestern Montana and up to 7,500 feet on warm aspects in southern Montana. Douglas-fir is the dominant conifer west of the Continental Divide, with western larch, lodgepole pine and western white pine. East of the Continental Divide, lodgepole pine is the co-dominant with Douglas-fir. Undergrowth is dominated by grasses, such as bluebunch wheatgrass, pinegrass and sedges. The understory contains a variety of shrubs, such as Rocky mountain maple, kinnikinnick, common juniper, oceanspray and ninebark.

In Montana, this system is found on montane slopes, where climate is dry and cold during winter months. The tree canopy is composed of a mix of deciduous and coniferous species, co-dominated by aspen and conifers, including Douglas-fir, subalpine fir, Engelmann spruce, lodgepole pine and ponderosa pine. Common understory shrubs include serviceberry, creeping Oregon grape, chokecherry, Woods' rose, birch-leaf spiraea and snowberry.

Birds that benefit in specific ecosystem



Red-naped Sapsucker (left) and Olive-sided Flycatcher (right) are two important bird species that benefit from silvicultural activities in the Rocky Mountain Montane Douglas-fir ecoregion.



Flammulated Owl (left) and Wild Turkey (right) are two important birds that can benefit from some silvicultural practices in the Rocky Mountain Ponderosa Pine Woodland and Savanna ecoregion.



MacGillivray's Warbler (left) and Lewis Woodpecker (right) are two important birds that can benefit from some silvicultural practices in the Rocky Mountain Dry-Mesic Montane Mixed-Conifer ecosystem.

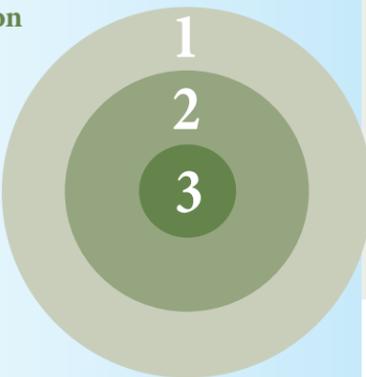


Ruffed Grouse (left) and Common Yellowthroat (right) are two important birds that can benefit from some silvicultural practices in the Aspen and Mixed Forest ecosystem.

EVALUATING A PROJECT

Creating a woodlot management plan can include many elements related to economic and aesthetic concerns. To include bird habitat considerations, additional emphasis is given to creating habitat that will support species in need of conservation. It considers habitat at three scales, going from the largest to the smallest:

- 1 The conservation priorities of the connected ecoregion
- 2 The landscape surrounding the parcel
- 3 The stand level characteristics



After evaluating current habitat conditions, the landowner can establish and prioritize management activities based on combined timber and bird habitat objectives, using good management practices for bird habitat outlined in this brochure.

STEP 2 Determine the Landscape Condition for Birds

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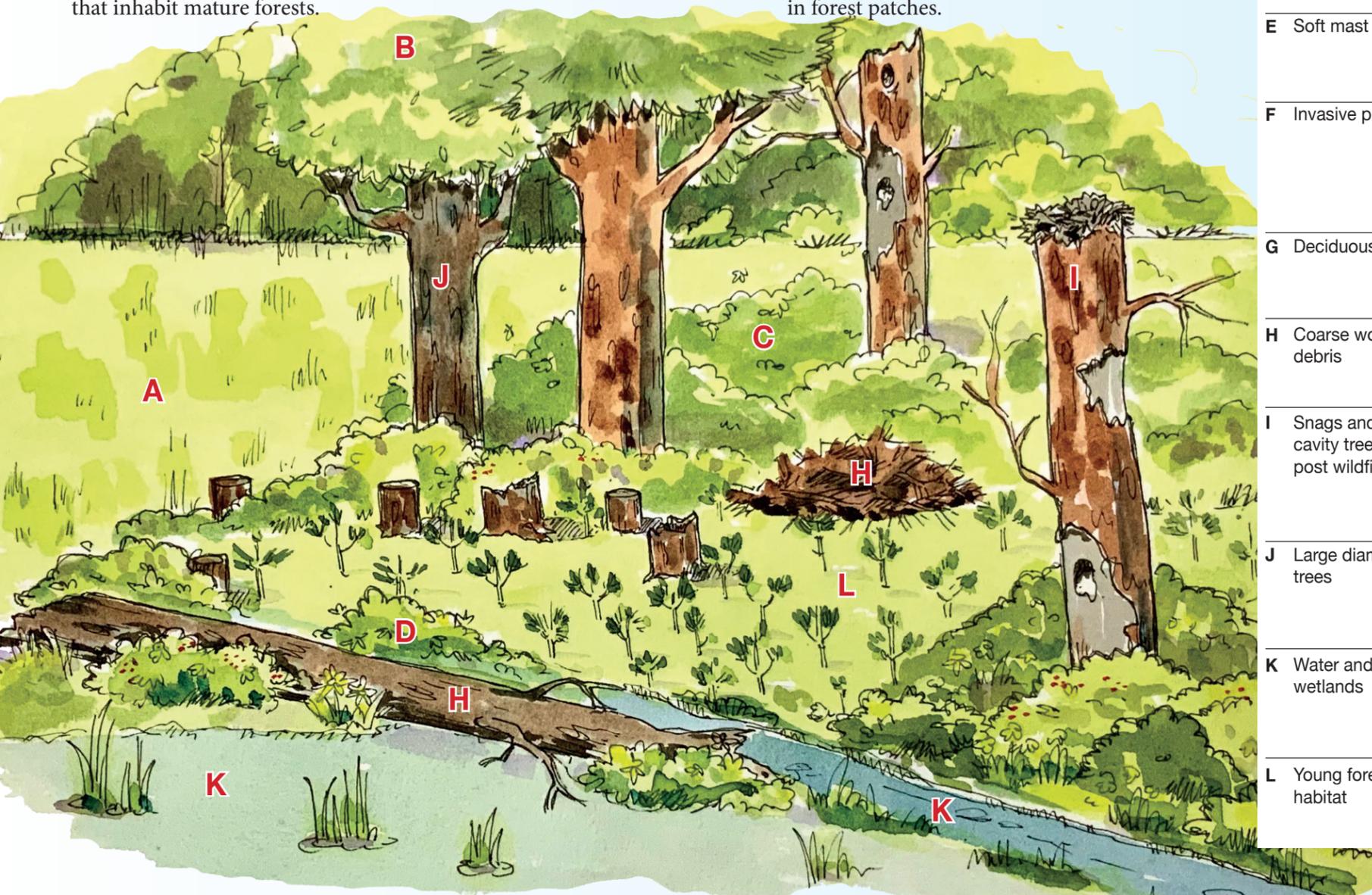
Moving inward from the ecosystem, the next level to consider is the landscape immediately surrounding the property. This landscape can have implications for stand level habitat quality. Consider evaluating this level at about 2,500 acres or a one mile radius around the property. Evaluate the land uses and forest age classes as well as their configuration (size, shape, arrangement and relative position) adjacent to the property. Agricultural land use around a property likely will have different implications for bird species presence than an adjacent national park. For more information, visit **Montana Natural Heritage Program: <http://mtnhp.org/>**.

Things to consider at this level are:

Representation of Age Classes—the long term goal is to create a mosaic of successional stages across the landscape, while allowing some forest to naturally mature to old-growth conditions. Diversity of forest ages, combined with wetlands and riparian areas, will support many key bird species. Pileated Woodpecker and Brown Creeper are important bird species that inhabit mature forests.

Amount of Forest Cover and Large Patches—Large patches (greater than 1,000 acres) of contiguous forest provide the highest quality habitat for interior nesting bird species that reproduce more successfully away from edges and development. Varied Thrush and Townsend's Warbler are two important bird species that require large patches of habitat.

Proximity of Patches and Surrounding Land Use—the proximity of forest patches to each other is important, especially in a landscape fragmented by agriculture or development. Dispersal of young birds from large patches can aid in recolonization of smaller patches. Evening Grosbeak and Pine Siskin are bird species that breed and feed in forest patches.



STEP 3 Analyze Stand Level Conditions

3

Moving inward from the surrounding landscape, the last thing to consider is the habitat structure and complexity within a stand. A bird's ability to survive and successfully reproduce is dependent on the presence of specific structural features such as nest sites, food and foraging substrates, singing perches and cover from predators. Managing forest conditions to develop and retain appropriate structural features can increase the habitat quality of the stand for birds.

Stand Level Habitat Feature	Description	Management Options	Representative Bird Species
A Forest edge	Edges provide diversity but can expose birds to predation and nest-parasitism	Circular openings have less edge relative to area. Square patches are better than long thin strips of trees	Brown-headed Cowbird Song Sparrow
B Canopy composition	Trees greater than 30 feet tall and canopy greater than 80% represent mature forests	Creating gaps through low-intensity harvest mimic small natural disturbance	Swainson's Thrush Pacific Wren Yellow-rumped Warbler
C Midstory vegetation	Woody vegetation 5-30 feet high provide nesting and foraging habitat	Shelterwood harvest with reserves; patch selection	MacGillivray's Warbler
D Understory vegetation	Live vegetation 0-5 feet high provide nest sites, foraging areas and protective cover	Clearcut with reserves Overstory removal Seedtree treatment	Lewis's Woodpecker Green-tailed Towhee Dark-eyed Junco
E Soft mast	Berry producing shrubs such as huckleberry, serviceberry and Oregon grape	Shelterwood treatment Clearcut with reserves Small group selection	American robin Cedar waxwing Townsend's solitaire
F Invasive plants	Noxious weeds and non-native plants threaten forest health and reduce quality habitat for ground nesting birds	Locate group selection and engineered openings near already disturbed areas such as agriculture. Consider chemical treatment where feasible.	Dusky Grouse American Goldfinch Song Sparrow
G Deciduous litter	Leaf litter supports an array of insects, mites and spiders	Retention of riparian trees and aspen; variable retention thinning; diverse seedling planting	Hermit Thrush Wild Turkey Spotted Towhee
H Coarse woody debris	Downed logs and branches support arthropods for food, drumming sites and cover	Retention of blowdown and slash piles	Ruffed Grouse Chipping Sparrow Lazuli Bunting
I Snags and cavity trees/post wildfire	Standing dead and dying trees support nearly 25% of Montana bird species	Retention of snags in harvest units consistent with safety rules; light salvage of recently burned forests	Black-backed Woodpecker Western Tanager Western Wood-pewee Olive-sided Flycatcher Mountain Bluebird
J Large diameter trees	Trees greater than 24" provide existing nest trees for large raptors and future snags for large cavity nesters	Variable retention thinning Single tree selection Shelterwood/Clearcut with reserves Patch selection	Northern Goshawk Flammulated Owl Pileated Woodpecker
K Water and wetlands	Streams, ponds and wetlands add to the diversity of habitats available for forest birds	Selective harvest Implement stream management zone rules and best management practices	Yellow Warbler Pacific Wren Alder Flycatcher Common Yellowthroat
L Young forest habitat	Creating a young forest patch is one of the most beneficial management actions	Group selection harvest Clearcut Seedtree harvest	American Goldfinch Stellar's Jay Warbling Vireo Black-headed Grosbeak

FINDING HELP

I'll rework this entire page. I think that the links for the food plot and guzzler should be included in the guzzler sidebar at right. Also, some of these links are long and cumbersome to copy and type in to a browser, especially Upland game improvement techniques. Please let me know how we might be able to handle this longer info more easily. Thanks

Food Plot enhancement
<https://fwp.mt.gov/ugbep>

Improving gallinaceous guzzlers
[https://www.onlinelibrary.wiley.com/doi/abs/10.2193/0091-7648\(2006\)34%5B633:RGTEW%5D2.0.CO;2](https://www.onlinelibrary.wiley.com/doi/abs/10.2193/0091-7648(2006)34%5B633:RGTEW%5D2.0.CO;2)

Upland game improvement techniques
https://www.dfw.state.or.us/resources/hunting/upland_bird/habitat/index.asp#:~:text=%E2%80%9CGallinaceous%20guzzlers%E2%80%9D%20are%20a%20type%20of%20small%20water,available%20to%20upland%20game%20birds%20and%20other%20wildlife.

Gallinaceous guzzler design
<https://efotg.sc.egov.usda.gov/references/Public/CO/guzzler.pdf>

Information for landowners interested in bird conservation

https://nabci-us.org/wp-content/uploads/2021/01/Bird_Conservation_and_Human_Values_01-20-21.pdf

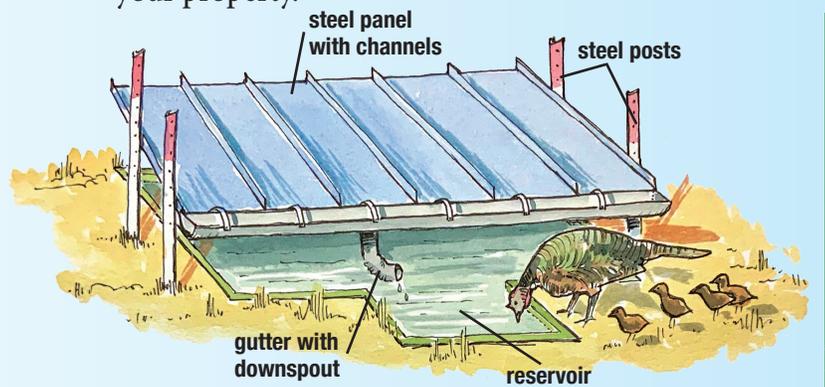
Sustainable Forestry Initiative
<https://www.forests.org/>

Montana Field Guide for Landowners
<http://fieldguide.mt.gov/>

Want to increase game birds on your property? Plant a food plot or install a guzzler!

Pheasants, Grouse and Partridge are well adapted to make it through tough Montana winters but there is something you can do to help them thrive on your property...plant a food plot! Options include planting standing grain plots or new diverse seed mixes. Plots should be located within a quarter mile of winter cover such as a brushy draw, canopied forest stands or cattail marsh. Montana Fish, Wildlife and Parks offers assistance to offset landowner planting costs.

Gallinaceous guzzlers catch and store rainwater and have been successfully used in many habitats to provide essential water supply to upland game birds and many species of wildlife. Guzzlers come in many designs and sizes. They can be constructed on site or purchased commercially and installed on your property.



Most guzzlers are designed to withstand winter temperatures without being drained. This is just one example of a guzzler.



Final logos needed here. I'll rework.